

FOUR DISCOURSES;

I.

THE RELIGIOUS USE OF BOTANICAL PHILOSOPHY.

II.

CONSIDERATIONS ON THE NATURE AND ŒCONOMY
OF BEASTS AND CATTLE.

III.

ON THE NATURAL HISTORY OF THE EARTH
AND ITS MINERALS.

IV.

ON THE NATURAL EVIDENCES OF CHRISTIANITY.

PREACHED ON

MR. FAIRCHILD'S FOUNDATION,

IN THE YEARS

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AT THE CHURCH OF

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BY WILLIAM JONES, M. A. F. R. S.

MINISTER OF NAYLAND, SUFFOLK.

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SERMON I.

THE
RELIGIOUS USE OF BOTANICAL
PHILOSOPHY.

GENESIS I. XII.

*And the earth brought forth grass, and
herb yielding seed after his kind; and
the tree yielding fruit, whose seed was
in itself; and God saw that it was
good.*

IF an author, who should undertake to
explain the proportion of architecture,
were to trouble us with a long preface,
to prove that every house we see must
have been the work of some man, be-
cause no house could possibly build it-
self,

self, or rise into form by accident; I presume, we should all be of opinion, that he might have spared this part of his labour. It seems equally superfluous to insist, that the structure of nature could not raise itself; the cases being exactly parallel, and both self-evident to common sense. There is a sort of sense, which pretends to discover, not only that the argument is necessary, but that the proof is deficient. We trust, however, that such sense neither is, nor ever will be common. If there really be such a thing as speculative or philosophical atheism, that doctrine must be the individual point, in which the affectation of wisdom meets the extremity of folly; and it would be loss of time to reason with it. We therefore take it upon the authority of the text, that herbs, trees, fruits and seeds, are the work of

God :

God; and the present occasion requires us to consider how, and in what respects, this work is *good*, and displays the wisdom of the great Creator.

The *goodness* ascribed to this part of the creation is evidently not moral but natural: it means, that the several articles of the vegetable kingdom have that sort of goodness of which they are capable; that they are beautiful and perfect in their kinds; wonderful in their growth; sufficient in their powers and properties; and beneficial in their uses. In these capacities we are to consider them; and to observe how the wisdom of the Creator is manifested.

First, in the form and structure of vegetables.

Secondly, in the manner of their growth.

B 2

Thirdly,

Thirdly, in their natural uses, for meat and medicine.

Fourthly, in their moral uses; for the advancement of human prudence and religious faith.

Herbs and flowers may be regarded by some persons as objects of inferior consideration in philosophy; but every thing must be great which hath God for its author. To him all the parts of nature are equally related. The flowers of the earth can raise our thoughts up to the Creator of the world as effectually as the stars of heaven: and till we make this use of both, we cannot be said to think properly of either. The contemplation of nature should always be seasoned with a mixture of devotion; the highest faculty of the human mind; by which alone contemplation is improved, and dignified, and directed



directed to its proper object. To join these together is the design of our present meeting; and when they are joined, may they never more be put asunder!

In the form and structure of plants, with the provision for their growth and increase, there is a store of matter which would more than fill a philosophical treatise: I must therefore content myself with tracing some of the outlines of so large a subject.

The first thing which engages the curiosity of man, and tempts him to bestow so much of his labour and attention upon this part of the creation, is the beautiful form and splendid attire of plants. They who practise this labour know how delightful it is. It seems to restore man in his fallen state to a participation of that felicity, which he enjoyed while innocent in Paradise.

When we cast our eyes upon this part of nature, it is first observable, that herbs and trees compose a scene so agreeable to the sight, because they are invested with that green colour, which, being exactly in the middle of the spectrum of the coloured rays of light, is tempered to a mildness which the eye can bear. The other brighter and more simple colours are sparingly bestowed on the flowers of plants; and which, if diffused over all their parts, would have been too glaring, and consequently offensive. The smaller and more elegant parts are adorned with that brightness which attracts the admiration without endangering the sense.

But while the eye is delighted with the colouring of a flower, the reason may be still more engaged with the natural use and design of a flower in the œconomy
of

of vegetation. The rudiment of the fruit, when young and tender, requires some covering to protect it; and accordingly, the flower-leaves surround the seat of fructification; when the sun is warm, they are expanded by its rays, to give the infant-fruit the benefit of the heat: to forward its growth when the sun sets, and the cold of the evening prevails, the flower-leaves naturally close, that the air of the night may not injure the seed-vessel. As the fructification advances, and the changes of the air are no longer hurtful, the flower-leaves have answered their end, and so they wither and fall away. How elegant therefore, as well as apposite, is that allusion in the gospel; *I say unto you, that Solomon in all his glory was not arrayed like one of these**; for

* Matt. vi. 29.

the flower, which is the glory of the lily and other plants, is literally and physically a raiment for the clothing of the seed-vessel! And a raiment it is, whose texture surpasses all the laboured productions of art for the clothing of an eastern monarch. The finest works of the loom and the needle, if examined with a microscope, appear so rude and coarse, that a savage might be ashamed to wear them: but when the work of God in a flower is brought to the same test, we see how fibres, too minute for the naked eye, are composed of others still more minute; and they of others; till the primordial threads or first principles of the texture are utterly undiscernible; while the whole substance presents a celestial radiance in its colouring, with a richness superior to silver and gold; as if it were intended for the clothing of an angel.

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The whole creation does not afford a more splendid object for minute examination than the leaves and filaments of flowers; even of some flowers which look obscure, and promise little or nothing to the naked eye.

But besides this richness of substance and colour, there is an elegance of *design* in the whole form and disposition of a plant, which human artists, in ornamental works, are always studious to imitate. Their leaves, and branches and flowers, are thrown about with that ease, and turned into beautiful lines, so as to charm the eye with a variety of flexure, and convince us that all the excellence of art must take its pattern from nature.

The parts generally observable in plants, are a root, a stalk, branches, leaves, flowers, fruit and seeds, succeeding

ing each other in their order, and all seeming necessary to one another. But under the direction of divine wisdom, vegetable life is carried on in every possible form, and the end of fructification is attained, while the means seem to be wanting: as if Providence meant to shew us, that it is not confined to any particular means; and that the work of God in this respect essentially differs from the work of man. The *Capillary* Plants, or Ferns, have neither stalks, nor branches, nor flowers, but consist of single leaves on their pedicles, with seeds upon the backs of them. The flower of the *Carline Thistle* sits upon the ground without a stalk; while the *Euphorbium*, or *Torch Thistle*, has nothing but a stalk, like the staff of a spear. The *Melon Thistle* is all fruit; the *Opuntia*, or *Indian fig*, all leaf: the *Jessamine* has a flower without a seed;

a seed; the Fig-tree a fruit without a flower. *The Tuber Terræ*, or Truffle, has neither leaf, stem, branch, flower nor seed; nothing but a globular root, which thrives under ground, and does not appear to be fed by fibres like other roots; yet it increases and multiplies.

It is a general rule in nature, that plants which have the same characters have like qualities; but where this rule would teach us to expect a poison, we find a plant with an agreeable odour and wholesome nourishment; as in the *Solanum Esculentum*, which is of a deadly race, with all the external characters of a night-shade. Are we not hence to learn, that quality does not arise from configuration, or from any necessity of nature; but follows the will and wisdom of the Creator; who to every plant, as to every man, *divideth severally as he will?*

It

It seems essential to trees, that they should be fixed in the earth, and draw their nourishment from it; but some will have no communication with the earth; affixing themselves in a strange manner to the wood of other trees, and subsisting upon their juices; yet preserving their own peculiar nature and complexion.

Flowers are commonly expanded by the heat of the Sun; but some are opened in the evening when others are closed; and break forth at midnight; particularly one, which is the glory of the vegetable creation; like the nightingale, which delights the ear of man, and displays its skill without a rival, while other birds are silent and at rest.

When we survey the plants of the sea, how discernible is that wisdom which hath provided for their subsistence and safety in that element! Such as have
broad

broad leaves, and would be forced from their station by tides or storms, if their roots were fixed into an earthy bottom, are fastened by the root to weighty stones and pebbles; where, instead of being driven about at random by the agitations of the water, they lie safe at anchor. That they may not be bruised by lying prostrate on the ground, they are rendered powerfully buoyant, and kept in an erect position, by means of large vesicles of air, variously disposed about their leaves or their stalks, as the difference of their form and structure may require. A similar provision for their preservation is observable in many of the plants which grow upon the land. Such as are tender and flexible, and apt to trail upon the ground, are furnished with spiral tendrils, or other like means, by which they lay hold of such other plants

as

as are firm and upright. What an useful lesson is this to human society! where, according to the analogy of nature, the strong ought to support the weak, and the defenceless should rest securely upon the powerful. How different a place would the world be, if this example were religiously followed!

And now if there are so many effects of the divine wisdom visible to us who are confined in a climate remote from the sun; what opportunities must they have, what wonders of the Lord must they see, *who go down to the sea in ships*, and make their observations in happier regions; where the sun, the soil, the air, all things being different, vegetation is on a much larger scale, and presents many grand and glorious objects which can never come to our sight!

In speaking of the growth of plants, which is the second thing to be considered, I must forbear to attempt a theory. The first particular which meets us is that spoken of in the text; that herbs and trees carry their *seeds in themselves*: from whence it seems deducible, that the primeval tree or plant, which was contemporary with the first father of mankind, included all the trees that should proceed from it to the end of time: so that the seed which is growing into an herb at this day is but an evolution of something which subsisted in the first plant at the creation. How to get clear of this consequence we do not see; and to pursue it we are not able; our imagination is bewildered and lost in the idea of such a succession; the rudiments of a future forest included in a single acorn!

It

It is not so far beyond us to observe, how the elements in their several capacities are made subservient to the life and increase of plants. The soil on which they grow contains a mixture of principles, wisely tempered together, which supply vegetables with matter for their nourishment; and their root with its fibres and lacteals, which takes in this nourishment, answers the same purpose as the stomach in animals. Water is the vehicle which conveys this nourishment into their vessels; while the sun and air, expanding and contracting, keep up an oscillatory motion, analogous to that of respiration.

It is now allowed, that there is both a vital circulation of the juices in vegetables, and a large perspiration from their pores; which latter is become a subject of great curiosity and importance, from
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the successful labours of those who have cultivated this part of natural philosophy. The circulation in plants is strong in the spring, and languid in the winter; in some it is so forcible and abundant, that if their vessels are opened at an improper season, they will bleed to death, as when an artery is divided in the human body. If the finer spirit evaporates from a plant, and it has no fresh supply, it becomes instantly flaccid and fading, as an animal body dies with the departure of its breath.

The process of vegetation is forwarded in a wonderful manner by the vicissitude of day and night, and the changes of the weather. The heat of the sun raises a moist, elastic vapour, which fills and expands certain vessels in plants, and so gradually enlarges their bulk; while the colder air of the night condenses and
c digests

digests the matter which has been raised, and so confirms the work of the day. We complain of cold blasts and clouded skies, by the intervention of which vegetation rapidly advancing is suddenly stopped and seems stationary: but this may be wisely ordained by Providence: the growth of herbs may be too hasty; they are weak in substance, if they are drawn forward too fast. A cold season prevents this too hasty growth; as in the moral world some seasonable disappointment may give a salutary check to an aspiring mind, and establish it in wisdom and patience. Even the roughest motions of the elements have their use. Winds and storms, which agitate the bodies of trees and herbs, loosen the earth about their roots, and make way for their fibres to multiply, and to strike more kindly into the soil, to find new nourish-

nourishment. Thus is nature more effectually progressive when it seems to be stationary or even retrograde; and all things work together for good; which they could never do but under the foresight and direction of an all-wise Providence.

But above all, the showers of heaven, concurring with the sun, promote the work of vegetation. They keep the matter of the soil soluble, and consequently moveable; for salts cannot act but in a state of solution; they furnish matter for an expansive vapour, which acts internally and externally; and, what is but little understood, though equally worthy of admiration, the rain brings down with it an invigorating ethereal spirit from the clouds, which gives it an efficacy far beyond all the waterings which human labour can administer. It

is here in the kingdom of nature as in the kingdom of grace; nothing can succeed without a blessing from heaven: *Every good gift and every perfect gift is from above, and cometh down from the Father of Lights* *. How commonly do we see, that some seeds which lie still in the ground, and cannot be made to stir by all the waterings of art, will suddenly start up to life as soon as they are touched by a watering from the heavens! Such is the difference between the gifts of God and the gifts of man.

But, thirdly, the goodness of God, as well as his power and wisdom, is displayed in the uses of plants: and it is rather a matter of duty than of curiosity to consider them attentively. It is the wisdom of man to learn the will of God

* James i. 17.

from the state of nature, as well as from the pages of revelation; and it is his happiness to follow it when known. According to the state of nature a preference seems to be given to vegetable diet. For the useful and harmless cattle, which either feed man with their milk or assist him in his labours, nothing is provided but a vegetable or farinaceous diet. Animal food is proper to wild beasts of fierce and savage natures: and the man who abuses it is too nearly allied to that class of animals. The beasts distinguished by the Levitical Law as proper and wholesome to man are very few. The inhabitants of the waters, which supply a more temperate diet, are administered to us in much greater variety: but the luxuriance of nature is found in the vegetable kingdom; where the roots, leaves, fruits, and seeds of plants, afford

all that is most tempting to the eye, grateful to the taste, and desirable to the appetite. The sweetest food in the world; which is honey, is a composition elaborated by the bee from the flowers of vegetables. The emblematical horn of plenty is not stored with beasts, fowls, and fishes, but with herbs and fruits for the sustenance and delight of man. The efficacy of a vegetable diet, for preserving the body in health, and the mind in a clear and temperate state, hath in all ages been confirmed by the experience of the wise and good. The greatest instances of longevity have been found among the virtuous and the recluse, who feasted on the herbs and roots which their own hands had cultivated.

Of the goodness and wisdom of God we have farther evidence in the medicinal

nal herbs. If men obtain the reputation of wisdom by a judicious application of them to the cure of diseases; what must that original wisdom be, which gave them their forms and their faculties! *The Lord, saith the son of Sirach, hath created medicines out of the earth, and he that is wise will not despise them.** When he considers who is the author of them, he will be persuaded, that, if understood, they must be found more safe in their use, than the preparations of human art; he will therefore respect their virtues, and give them the preference which is due to them. There is certainly a momentum in mineral preparations, which produces sudden and great effects; but their power approaches too near to violence; while the vegetable medicines,

* Ecclus. xxxvii. 4:

ordained to be such by the Creator, are more congenial to the human constitution; and thus a reasonable alliance is preserved between the medicine of man and the diet of man; but we never eat minerals, though we use them in medicine; often with some good, but also with the danger of some bad effect. The mineral materials of a volcano will warm us, as the fuel of any other fire; but at the same time they may suffocate us, or send down ruin upon our heads.

What possible modification of minerals can chemistry exhibit, which will quiet a distempered agitation of the nerves, and lessen the sensation of pain, which would otherwise be insupportable? But this desirable effect is wonderfully produced by the medicinal juice of the poppy. The learned know that there are several effects in medicine, which are never to be
obtained

obtained but from vegetables; and so persuaded are they of a specific, salutary power in them, that they apply for help even to such plants as are poisonous. That the poisonous plants have their use, we must presume, because they have the same divine author with the rest. *Every creature of God is good* in its proper capacity; but if we mistake its capacity, we shall abuse it. Poisonous herbs, from their great power, may do service internally, in very small quantities: but we should rather suppose, from what we have heard and seen, that they were intended chiefly for external application; in which they can perform wonders; and medicine might perhaps be improved, if more experiments were made in this way. But, it is not my province to enlarge here, and I have nothing but
a good

a good meaning to plead for proceeding thus far.

It is now to be observed, lastly, that the same wisdom, which ordained the vegetable creation for the natural use of feeding and healing the body, hath applied it also to a moral or intellectual use, for the enlarging of our ideas, and the enlightening of our understandings. It joins its voice in the universal chorus of all created things, and to the ear of reason celebrates the wisdom of the Almighty Creator. As *the heavens* from day unto day, and from night unto night, *declare the glory of God*, so do the productions of the earth, all trees and herbs, in their places and seasons, speak the same language; from the climates of the north to the torrid regions of the south, and from the winter to the spring and the harvest.

The

The holy scripture hath many wise, and some beautiful allusions to the vegetable creation, for moral and religious instruction. The most ancient piece of this sort is the parable of *Jotham* in the book of *Judges*; where the dispositions and humours of men, and their effects in society, are illustrated by the different natures of trees. On occasion of *Abimelech's* treachery, *Jotham* tells the people, under the form of a fable, that the trees went forth to anoint them a king; and when all the good and honourable, as the olive, the fig-tree, and the vine, declined the trouble of ruling in society, the bramble offered his services, and invited them to *trust* in his *shadow**. Thus it had happened in the case of *Abimelech*: and doth not experience shew

* See Judges ix. 8, &c.

us at this day, that the moral is still good? that the worst, and most worthless, are always the most forward to thrust themselves into power, and promise great things; how safe and happy we should be under their shadow! As if brambles, of a nature to tear the skin, and draw blood from every part of the body, and fit for nothing but to be burned out of the way, could form an agreeable shade for the people to sit under. The good and the virtuous, who are fruitful and happy in themselves, would be deprived of their internal comforts by the hurry and danger which attend the possession of power: but bad men, who have no source of content and enjoyment within themselves, are always so forward to seek it without themselves, and would turn the world upside down, or tear its inhabitants to pieces,

pieces, to satisfy their own ambition. When circumstances conspire to bring those into action who are most worthy of power, then people sit *under the vine*, and *under the fig-tree*, in the enjoyment of peace and plenty.

Our blessed Saviour, with a like illusion, hath referred us to the natural state and condition of plants and flowers; thence to learn the unprofitableness of that anxiety and distrust, with which we seek after the things of this world, *Consider the lilies, how they grow—If God so clothe the grass of the field, shall he not much more clothe you*?* As if he had said; “You admire the beautiful clothing of a flower; and indeed it is worthy of all admiration: the God on whom *you* depend is the author of its wonderful

* Matt. vi. 22.

contexture;

contexture; whence you ought to learn, that if he hath bestowed this rich attire upon the inferior part of the creation, the grass of the field, so fading and transient, he will never leave you unprovided who are made for eternity."

The accidents to which plants are exposed in their growth, afford matter for the beautiful and instructive parable of the sower, which conveys as much in a few plain words, as a volume could do in any other form*. The seed of God's word, when it is sown by a preacher, may fall into an honest and good heart, as the seed of the sower into a happy, fruitful soil; or it may light among the thorns of worldly cares, and the rank weeds of worldly pleasures, which, spring-

* Matt. xiii. 3, &c.

ing up with it, will choke it and render it unfruitful: or it may fall into an hasty, impatient mind, like seed upon a shallow, rocky soil, where it has no depth of earth, and so cannot endure when the heat of the sun dries it. Other minds are open to the ways of the world in public or fashionable life, and unguarded against the dangers of sin; so are exposed to the depredations of evil spirits, which rob them of what they had heard; as birds of the air pick up without fear or molestation the seeds which are scattered by the side of a public road.

The transient nature of plants and flowers has given occasion to many striking representations of the brevity and vanity of this mortal life. "As the leaves wither and fall away from the trees, and others succeed, so," saith an
ancient

ancient poet, “are the generations of men *.”

How sublime and affecting is that reflection in the book of Job—“Man that is born of a woman hath but a short time to live, and is full of misery: he cometh up like a flower, and is cut down †.” In the same figurative language doth the Psalmist speak of the flourishing state of man in youth, and his decay in the time of age: “In the morning they are like the grass which

* Οἷη περ φύλλων γένεσις, τοιῆδε καὶ ἀνδρῶν.

Φύλλα γὰρ μιν τ' ἀνέμος χαμαὶ δὲ χειρὶ.

Hom. II. ζ. 146.

Like leaves on trees the race of man is found,
Now green in youth, now with'ring on the
ground.

Pope's Hom. b. 6. l. 181.

† Job xiv. 2.

groweth

groweth up, in the morning it flourisheth and groweth up; in the evening it is cut down and withered." To cure us of our confidence in the wealth and prosperity of this world, and make way for the serious temper of the gospel, nothing can be more expressive and rhetorical than that sentence of St. James: "Let the brother of low degree rejoice in that he is exalted; but the rich in that he is made low; because as the flower of the grass he shall pass away: for the sun is no sooner risen with a burning heat, but it withereth the grass, and the flower thereof falleth, and the grace of the fashion of it perisheth: so shall the rich man fade away in his ways:" that is, he shall decay in his prosperity, as the flower fades the sooner for the enjoyment of the sun-shine.

The reviving of seeds and roots buried in the earth, though so common a fact, is yet so wonderful, that it is more than a figure, it is a pledge and assurance that the dead shall rise again. In every spring nature presents us with a general resurrection in the vegetable world, after a temporary death and burial in the winter. The root that lies dormant under the ground *is a prisoner of hope*, and waits for the return of the vernal sun. If it could speak, it might repeat (and to the ear of faith it does repeat) those words of the apostle; *O grave, where is thy victory?* So plainly doth vegetable nature preach this doctrine of the resurrection, that the man is supposed to be senseless, who does not make this use of it—*thou fool, it is not quickened, except it die.*

I would

I would now only observe, after what hath been said, that a right use of our present subject in all its parts must contribute to the dignity and to the happiness of man. How innocently, and how pleasantly is he entertained, who in cultivating the various productions of the earth, hath the elements working with him, and assisting him to perfect his flowers and fruits, and raise a Paradise around him! What a rational and noble employment it is, to trace the effects of divine wisdom in a survey of the vegetable kingdom; in the beautiful forms of plants, their endless variety, the configuration of their organs, the distinction of their characters; the places of their inhabitation, by land, by sea, in rivers and in lakes, on rocks and mountains, in the fields, the pastures, and the woods: with their successions from the spring to

the summer, from the summer to the autumn; their appearances by day and by night.

How proper is it to use them for health and for temperance, as the wise have done, and as the Creator, ever mindful of the *sum* of our happiness, hath appointed! What a respectable benefactor is he to mankind, who discovers their virtues in medicine, and applies them to the relief of the miserable; an office ever grateful to a benevolent mind!

But happiest of all is he, who having cultivated herbs and trees, and studied their virtues, and applied them for his own and for the common benefit, rises from thence to a contemplation of the great Parent of good, whom he sees and adores in these his glorious works. The world cannot shew us a more exalted character than that of a truly religious philosopher,

philosopher, who delights to turn all things to the glory of God; who from the objects of his sight derives improvement to his mind, and in the glass of things temporal sees the image of things eternal. Let a man have all the world can give him; he is still miserable, if he has a groveling, unlettered, indevout mind: let him have his gardens, his fields, his woods and his lawns, for grandeur, ornament, plenty, and gratification; while at the same time God is not in all his thoughts. And let another have neither field nor garden; let him only look at nature with an enlightened mind; a mind which can see and adore the Creator in his works; can consider them as demonstrations of his power, his wisdom, his goodness, his truth: this man is *greater*, as well as happier, in his poverty,

verty, than the other in his riches. The one is but little higher than a beast, the other but little lower than an angel.

We ought therefore to praise those who in their life-time made this use of the natural world, and gratefully to remember that piety, which directed our minds to an annual commemoration of God's wisdom in the works of the vegetable creation: a great subject; in discoursing on which, I have only scattered some seeds, to be opened and perfected by your future meditation; in which may the grace of God assist us all, through Jesus Christ our Lord, &c.

SERMON

SERMON II.

CONSIDERATIONS

ON THE
NATURE AND OECONOMY OF BEASTS
AND CATTLE.



GENESIS I. XXV.

*And God made the beast of the earth after
his kind, and cattle after their kind, and
every thing that creepeth upon the earth
after his kind: and God saw that it
was good.*

WHEN the works of God were
finished, his eye surveyed them, and saw
that they were *good*; that they were per-
fect in their construction, and capable of

answering all the ends to which they were appointed. As far as man can observe this *goodness* in the works of nature, and see the mind of the Creator in the creature, so far he sees things as God sees them, and becomes partaker of a divine pleasure.

On a former occasion, I endeavoured to point out some of that goodness which is found in the *vegetable* kingdom*: from whence I shall now proceed to the *animal*, with a desire to trace the same goodness in the structure, qualities and œconomy of living creatures; but confining myself chiefly to those spoken of in the text, *beasts* and *cattle*.

When vegetable and animal life are compared, different things are to be ad-

* See the preceding Sermon on the *Religious Use of Botanical Philosophy*.

mired, but nothing is to be preferred; for the wisdom of the Creator, being infinite, is every where equal to itself; to its works nothing can be added with advantage, nothing can be taken from them without loss. All things are perfect in their several kinds, and possessed of that goodness or sufficiency which must be found in every work of God.

Yet there is a visible series or scale in the natural creation; where those derivative powers which are in the creature, rise from the lower to the higher, and keep ascending regularly till we can follow them no farther. When we pass from a lower to an higher order of beings, some new faculty presents itself to our admiration. Thus, betwixt plants and animals there are essential differences, which immediately strike us. A plant is a system of life, but insensitve, and

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fixed to a certain spot. An animal hath voluntary motion, sense, or perception, and is capable of pain and pleasure. Yet in the construction of each there are some general principles which very obviously connect them. It is literally as well as metaphorically true, that trees have limbs, and an animal body branches. A vascular system is also common to both, in the channels of which life is maintained and circulated. When the trachea, with its branches in the lungs, or the veins and arteries, or the nerves, are separately represented, we have the figure of a tree. The leaves of trees have a fibrous and a fleshy part; their bark is a covering, which answers to the skin in animals. An active vapour pervades them both, and perspires from both, which is necessary to the preservation of health and vigour.

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The parallel might be extended to their wounds and distempers: but we must not be too minute, when our purpose is rather to raise devotion than to satisfy curiosity. However, it ought not to be omitted, that the *vis vitæ*, or involuntary, mechanical force of animal life, is kept up by the same elements which act upon plants for their growth and support.

The organs of respiration, acted upon by the air, are as the first wheel in a machine, which receives the moving power; heat preserves the fluidity of the blood and humours, and acts as an expanding force in the stomach, heart, and blood-vessels; which force is counteracted from without by the atmospherical pressure; for the want of which, the vessels would be ruptured by the prevailing of the force within.

The

44 *Considerations on the Nature and*

The nerves form another distinct branch of the animal system, and are accommodated by the Creator to the action of that subtile, forcible fluid, which in its different capacities we sometimes call *light* and sometimes *ether*. Late experiments have shewn us how little this acts on the blood-vessels, and how powerfully on the nerves and muscles, the functions of which it will therefore restore, and hath done in several cases, when they have been impaired by diseases or accidents.

The animal mechanism, and the forces of life, are things fearful and wonderful in themselves, and of such deep research, that I am afraid of venturing too far: but thus far I think we are safe, that animal life, considered only as *motion*, is maintained like the other motions of nature, by the action of contrary forces;
in

in which there is this wonderful property, that neither appears to have the priority; and their joint effect is a motion, which in theory is perpetual. The flame of a candle cannot burn without fire, nor be lighted without air; which of these is first we cannot say, for they seem co-instantaneous; and they continue to work together till the matter fails which they work upon.

Thus, when an animal is born into the world, and the candle of life is lighted up, it is hard to give any precedence to the elementary powers which support it. The weight of the atmosphere forces into the lungs, as soon as they are exposed to its action, that air which is the breath of life; but this could not happen, unless the more subtile element were to occasion a rarefaction within: and this reciprocation, once begun, is continued
through

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through life : though it will fail if either of the elements cease to act upon it. With extreme cold, the circulation of the blood will stop ; and the want of air, or the admission of that which is improper, will extinguish the vital motion in the lungs. But here, as the power of the Creator is found to maintain a vegetable life in plants, where the necessary means seem to be wanting ; so, when we think the mechanism of animal life is understood, and that heat, and respiration, and circulation, are all necessary to it, we look farther, and find animals living without respiration ; some totally, and others (which is more wonderful) occasionally. Some are comparatively, if not positively, cold in their temperature ; as those which lie under water in the winter months. These are unable to endure that degree of heat which is the life
of

of others: as there are plants which fix themselves upon the bleak head of a mountain, and will never be reconciled to a richer soil and a warmer air. Thus does the wisdom of God work by various ways to the same end; and animal life is maintained where the means of life seem to be wanting. That the elements which act upon the barometer and thermometer are necessary to animal life cannot be doubted, however the receptive faculties of organised matter may be varied. We have musical sounds from the pipe, the string, and the drum: but never without the musical element of air.

If we enquire how the wisdom of the Creator is displayed in the different kinds of animals, the field is so large, that the time will permit us to consider those only to which we are directed by the words of
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the text, *beasts of their kind*. And herein without disadvantage of a distinction which the proposed to us for

The Law of Mosaic, in the chapter of *Leviticus*, divides the beasts into two genera, according to the fashion of their feet, and the manner of feeding; that is, the *hoof* and the *chewing of the cud*. These properties are indicative of their characters, as well as the dividing of the herd into two classes. The *cud* are peculiarly serviceable to oxen, goats, deer, &c. These are for a peaceable and quiet life; as

tions on the Nature and

ts of the earth and cattle after

And that we may proceed
at confusion, we must take
a plain and significant dis-
ch the holy scripture hath
us for our learning.

of *Moses*, in the 11th chap-
us, divides the brute crea-
o grand parties, from the
ir feet, and their manner of
is, from the *parting of the*
chewing of the cud; which
e indications of their general
as *wild* or *tame*. For the
the hoof and the chewing of
peculiar to those cattle which
ple to man's life, as sheep,
deer, and their several
se are shod by the Creator
ple and inoffensive progress
; as the Scripture exhorts

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Where one of the Mosaic marks is found, and the other is wanting, such creatures are of a middle nature between the wild and the tame ; as the swine, the hare, and some others. Those that part the hoof afford us wholesome nourishment ; those that are shod with any kind of hoof may be made useful to man ; as the camel, the horse, the ass, the mule ; all of which are fit to travel and carry burthens. But when the foot is divided into many parts and armed with claws, there is but small hope of the manners ; such creatures being in general either murderers, or hunters, or thieves ; the malefactors and felons of the brute creation : though among the wild there are all the possible gradations of ferocity and evil temper.

Who can review the creatures of God, as they arrange themselves under the two
great

great denominations of wild and tame, without wondering at their different dispositions and ways of life! Sheep and oxen lead a sociable as well as a peaceable life: they are formed into flocks and herds; and as they live honestly, they walk openly in the day. The time of darkness is to them, as to the virtuous and sober amongst men, a time of rest. But the beast of prey goeth about in solitude: the time of darkness is to him the time of action; then he visits the folds of sheep and stalls of oxen, thirsting for their blood; as the thief and the murderer visits the habitations of men for an opportunity of robbing and destroying, under the concealment of the night. When the sun ariseth the beast of prey retires to the covert of the forest; and while the cattle are spreading themselves over a thousand hills in search of

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pasture,

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pasture, the tyrant of the desert is laying himself down in his den, to sleep off the fumes of his bloody meal. The ways of men are not less different than the ways of beasts: and here we may see them represented as in a glass; for, as the quietness of the pasture, in which the cattle spend their day is to the howlings of a wilderness in the night, such is the virtuous life of honest labour to the life of the thief, the oppressor, the murderer, and the midnight gamester, who live upon the losses and sufferings of other men.

The different qualities and properties in which brute creatures excel are as manifest proofs of the divine wisdom as their different modes of living. The horse excels in strength and courage. His aptness for war is finely touched in the Book of Job—*Hast thou given the horse strength?*

strength? hast thou clothed his neck with thunder?—He paweth in the valley, and rejoiceth in his strength: he goeth on to meet the armed men: he mocketh at fear, and is not affrighted; neither turneth he back from the sword. When he heareth the sound of the trumpets, and the noise of the battle at a distance, the thunder of the captains and their shouting, he signifies by his voice and his motion, that he is impatient to join them and be in action. The fox excels in subtilty and subterfuge; and his arts find employment for some amongst mankind, who disdain to busy themselves in any useful study or labour for the benefit of the community.*

The dog is gifted with that sagacity, vigilance, and fidelity, which qualify him

* Job xxxix. 19.

to be the guard, the companion, the friend of man; and happy is he, who finds a friend as true and uncorrupt as this animal; who will rather die by the side of his master than take a bribe of a stranger to betray him. The sense whereby he is enabled to trace a single person through a croud of people, is a gift of the Creator, which exceeds our comprehension: and many other examples of the sagacity of this creature would be incredible, if they were not common and well attested. By what natural faculty they are performed, it is hard for us to conjecture.

In all brute creatures there is implanted an ardent attention toward their offspring, which prevails over every other consideration. Even the weakest creatures will undertake to defend and preserve

serve their young at the hazard of their lives. They do not leave their offspring to be attended for hire by others, that they may be at liberty to follow their own unprofitable pleasures: this duty is their greatest pleasure; and yet it never exceeds the bounds of discretion. Beasts, with all their tenderness, are never betrayed into any acts of false indulgence: their affection never gratifies itself with raising up their young to an unnatural state of ease, idleness, and ignorance: as soon as they are well able to exercise the faculties the Creator hath given them, they are compelled by their parents to provide for their own wants. And, through the divine bounty, the world is open to them, and their own labour is sufficient to maintain them. Provision of the proper sort is within the reach of every species, and a place is allotted to

each, in which it does not encroach upon the rest. The mountains and rocks are *a refuge for the wild goats*, which climb over frightful precipices to a pasture where no other creature can partake with them. The beast of prey is covered by the wood, and can feed himself according to his nature. Foxes, and other animals, have holes wherein they rest and hide themselves under the earth. The sheep hath a fold, the ox hath a stall, provided for them by man; having no covert provided by themselves. Beasts of labour are maintained by their labour; for few men are so unjust as to *muzzle the ox when he treadeth out the corn*.

The different manners of beasts and cattle, with their dependance upon the bounty of God, are briefly described to us in those sublime terms which are peculiar to the Scripture. *Thou makest
darkness*

darkness that it may be night; wherein all the beasts of the forest do move. The lions roaring after their prey do seek their meat from God. The sun ariseth, and they get them away together, and lay them down in their dens. (Then) man goeth forth to his work and to his labour until the evening; and those serviceable worthy creatures, which are the companions of his labour, go along with him—O Lord, how manifold are thy works; in wisdom hast thou made them all; the earth is full of thy riches! All creatures wait upon thee, that thou mayest give them their meat in due season. When thou givest it them, they gather it; and when thou openest thine hand they are filled with good. How great is this idea! the hand of man scatters food to the few creatures that are about him; but when the hand of God is opened, a world is fed and satisfied.

The

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The usefulness of Cattle to the support, comfort, and convenience of man, is a topic which would carry us out to a great length. The state of man, as an inhabitant of this world, could not be maintained without them. From cattle we have food, and raiment, and assistance, and employment. How wisely and mercifully is it ordained, that those creatures which afford us wholesome nourishment are disposed to live with us, that we may live upon them! Their milk is so agreeable to the human constitution, and so pleasant in itself, that it is celebrated among the first blessings of the promised land. The wool of the sheep gives us clothing, such as the world cannot equal: and late discoveries explain to us an essential difference between the vegetable clothing and the animal; the former of which draws off,
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the latter retains and promotes animal heat; and is found to assist in the cure of some very critical distempers. What would the labour of man avail, without the strength and patience of beasts to assist him in the cultivation of the earth, and the necessary business of life? even the fiercest of creatures *made to be taken and destroyed**, have their use; for, in taking and destroying them, man is employed; and so one great purpose of his present life is answered. Whoever considers this, will find, that the true state of nature is a state of society; in which men necessarily united against the beasts of the field, which would otherwise prevail against them: and he is fittest to be a leader in natural society, who can best defend others against their natural ene-

* 2 Pet. ii. 12.

mies the beasts. Thus from the nature of wild beasts arises one of the employments of man, which is that of hunting: to which war is nearly allied, as another sort of hunting; and it should never be entered upon, but for reasons the same with those which arm us against the beasts that would devour us; that is, for self-defence: though it is too true in fact, that men hunt men for their spoils, as they hunt wild beasts for their skins: and the scalps of men are the trophies of some, as the scalps of foxes are nailed up by others against a wall.

Hunters and warriors make a great figure in the world; but he that feeds the sheep is more honourably employed than he who pursues the lion. The attendance of man upon those innocent creatures which God hath ordained for his use, is an employment which succeeded

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to the life of paradise. The holy patriarchs and servants of God were taught to prefer the occupation of shepherds. Their riches consisted in flocks and herds; and it was their pleasure, as well as their labour, to wait upon them in tents, amidst the various and beautiful scenery of the mountains, the groves, the fields, and streams of water. The fancy of man hath always been delighted with the simple pleasures of the pastoral life; which probably afforded matter to the first poetry before the tumultuous scenes of war and slaughter had been celebrated in verse. Whatever the improvements of modern times may be, the imagination has a pleasure in resigning them all, to dwell upon the less improved manners of those who lived in the purer ages. O happy state of health, innocence, plenty, and pleasure; plenty without

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without luxury, and pleasure without corruption! How far preferable to that artificial state of life, into which we have been brought by overstrained refinements in civilization, and commerce too much extended! where corruption of manners, unnatural, and consequently unhealthy modes of living, perplexity of law, consumption of property, and other kindred evils, conspire to render life so vain and unsatisfactory, that many throw it away in despair, as not worth having. A false glare of tinfelled happiness is found amongst the rich and the great, with such distressing want and misery amongst the poor, as nature knows nothing of; and which can arise only from the false principles and selfish views and expedients of a weak and degenerate policy.

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It hath been made a question, whether the world and the creatures that belong to it were made for the benefit of man : which question was well argued, and wisely determined in the affirmative, by the philosophical orator of Rome : but the modern infidel, to make man an inconsiderable being, has a strong propensity to the negative ; and some poets, in their way of arguing, have attempted to make the subject ridiculous. We see that even the fiercest creatures have their use, by driving men into society for their mutual defence. All creatures in general are the subjects of man, whose dominion is established by a charter from heaven. By the reason and understanding of man the swiftest are overtaken, and the strongest are overpowered : he can take them as his property, manage
them

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them as his servants, confine them as his captives, and destroy them at his pleasure: they are impressed with a fear and dread of him, as if they were sensible of his power. Most of them serve to some natural use; but all have their intellectual use, in giving necessary ideas and lessons of wisdom to the mind of man. The goodness of God is no where more manifest than in this intellectual application of brute animals and their properties; no one creature upon earth can make that use of man, which man makes of all the rest; in rendering himself, if he will, a better reasoner, a better citizen, a more devout worshipper of God. This is so important a part of our present subject, so curious in itself, and so necessary to the improvement of the human understanding, that I must beg
your

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your attention, while I dwell upon it as far as the time will permit.

1. First then, we borrow from beasts, cattle, and creeping things of the earth, many of our best ideas of moral good and evil. As it was said by *Solomon*, "Go to the *ant*, consider her ways and be wise;" so might it be said, with parity of reason, go to the sheep for a pattern of submission and obedience: go to the ox for an example of patient labour: go to the swine; consider its stubborn disposition, its intemperance, and beastly uncleanness; and thence learn to abhor and avoid them. The passage taken by *St. Paul* from the poet *Callimachus* contains a plain allusion to the unprofitable character of this beast—"The Cretans are always liars, evil beasts, slow bellies*:"

* Κρητες ἀνὶ ψευταί, κακὰ θηρία, ὕασις ἀργαί.

Tit. i. 12:

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for the swine of the Eastern countries drags its belly upon the ground, and is so incapable of speed, that it can scarcely walk. And such is man, if he is a slave to his bodily appetites; his feet are retarded by the heaviness of his nature, and he can make no progress in any work that is good, useful, or ingenious.

The first man was instructed in Paradise from the qualities of brute creatures, which God summoned before him for his observation. The first writing in the world was by pictures and forms of animal life, for the conveying of religious and moral truth to the mind, before alphabetical writing was in use. These forms or likenesses had been abused by the idolaters of Egypt; so God forbade the use of them, and appointed the alphabetical signatures in their stead; which still retain some traces of the old animal forms.

forms*. The moral fables of antiquity are chiefly founded on the properties and manners of brute creatures, which are made to converse and reason according to the views and tempers of each, and so to give notice of the ways of different sorts of men. Thus also did God instruct his people in the law of *Moses*, by ordering their *diet* as they were to order their *conversation*. The unclean, and the rapacious, were prohibited, and, as it were, excommunicated; the useful, gentle, and obedient were selected for food and sacrifice. The prophets explain things in the same way. *Isaiab* describes the conversion of cruel and immoral heathens to the gospel of peace, under the figure of

* See some very ingenious observations on the Origin and Progress of Alphabetic Writing, by the Rev. Mr. *Davy*, printed for Cadell.

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a miraculous reformation amongst the wild beasts of the earth; when *the lion* should *eat straw like the ox*, the wolf and the lamb should *feed together*, and all the savage kinds should put off the nature of evil beasts, as formerly when they had all lived quietly under the same roof in Noah's ark, a figure of the church of Christ. The New Testament carries on the same mode of instruction, and Peter is taught in a vision that a communication was to be opened between the Jews and the Gentiles, under the figure of a liberty to eat all kinds of unclean beasts, now to be made clean by their reception to the purity of the gospel *. Even the ill qualities of the great adversary of mankind are set forth for our dread and abhorrence, from *Genesis* to the *Revela-*

* See Acts x. Compare verses 14, 15, and 28.

tion,

tion, under the emblem of the *old serpent*, *cursed above every beast of the field*; insinuating, double-tongued, and having the *power of death* in his bite. We see him again under the emblem of a *roaring lion*, going about and seeking whom he may devour. Thus are all the creatures serviceable, both good and bad, in giving us ideas for the improvement of the mind and manners.

2. We may observe next, that industry and activity are recommended to us by the example of the whole animal creation. All work, that they may eat; and therefore, he, who does not work, is not fit to live. All creatures *seek* their meat from God; it is not provided for any of them in an inactive state, but they must employ themselves to find and obtain it. Birds of the air are upon the wing from morning till evening. Wild creatures

hunt before they can be fed. Some partake of that sentence of labour passed upon man after the fall, and labour with him for their daily food. If it is then the appointment of God, that all his creatures should be in action, the idle man is a monster in the creation, who must pay for his offence either by poverty, sickness, ignorance, or vice; and must, in some respect or other, become a nuisance to society; on which consideration, it is a great evil in government to maintain any, or to suffer any, for want of employment, to live idly.

3. From the state of beasts under the dominion of man, as God hath wisely established it, the parallel is very strong for the benefit and necessity of government amongst mankind.

Among brute beasts we find the two classes of wild and tame, totally differing
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in their manners, and in a state of hostility with each other. Man is over them all, to feed the gentle and domestic, to reward the laborious, and to secure them from the incursions of the common enemy. To the one sort he is a governor and protector; to the other an avenger, who ought not to bear the sword in vain; for if he does, he himself must suffer by it as well as the beasts that are committed to his care; the enemy being equally at war with both.

Let us now suppose this law of subordination and subjection to be dissolved: let us suppose the authority of man to be withdrawn, and all animals abandoned to their natural liberty: what would be the consequence? The swine would make his part good by his impudence, and would root up the fruits of the earth in fields or gardens at his pleasure. Foxes, and other vermin, would no longer be

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thieves,

thieves, because there would be none to judge them, and so they would take what they wanted by natural right. The wolves would scatter the sheep and tear them to pieces: the dogs having no master to encourage and direct them, would forget their duty, and join the enemy: and thus the best part of the animal creation would become a prey to the worst. The dogs might perchance quarrel sometimes with a wolf: but the sheep would be no gainers by that.

In order to bring things to this state, the wolf might persuade the sheep, that the power of the shepherd is an imposition, a base encroachment of that tyrant and usurper man; that all creatures are born *free* and *equal*; and that they would see blessed times, if they were to assert their natural rights and become independent. The wolf, that should thus
argue

argue for universal liberty, would be a wise wolf; for he would soon be a gainer: but the sheep that should admit the argument, and bring up her lambs in the doctrine, would be a silly sheep indeed; for she would soon be a loser, chased out of her pasture, and worried out of her life.

Among men there certainly is the same difference as among the beasts. There is a sort of them with hard and unfeeling tempers, impudent foreheads, idle dispositions, voracious appetites, and endless wants: who will push themselves into importance, and make their party good either by importunity or by force. There is another sort, modest, sober, and gentle; fearful of offending, and contented with a little. This difference, so obvious and indisputable, is totally overlooked by those who plead
for

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for universal liberty and natural equality :
for men are no more equal in their na-
tures than the lamb and the lion's whelp :
and supposing liberty to be universal,
the bold, the impudent, the idle, and
the rapacious, instantly make their for-
tunes out of the peaceable and the pa-
tient. Therefore these can never live
together in the world, but under the or-
dinance of God, who has appointed an
authority of law and magistracy, which
lays a common restraint upon all : whence
all good men, who mean well and know
their duty, will pray for those who are
in authority, that God would direct their
counsels and strengthen their hands in
the execution of his laws, for the com-
mon good : that the fences may not be
weak, nor the beast of prey find friends
and accomplices within the fold. It is
of pernicious consequence to the peace
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of mankind, that there is a certain wild spirit of reforming policy, which, whether it works with the commanding air and garb of philosophy, or with the powers of oratory, or the fancies of poetry, can never rest till it has made men wolves to one another; for, as things are, this must be the effect of natural equality brought to its proper issue. If we would reason like men, let us first inform ourselves from the regulations and laws which God hath established in the world: this will be our best philosophy. When oratory takes us off from this ground, it is nothing but sophistry; and poetry, when it misrepresents the nature of things, is delusion and madness.

4. But now, fourthly, as the animal creation sets before us the natural interests of men in society, it leads us farther on to the attributes and perfections of

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of God; as the stream, if we trace it upwards, must bring us to the fountain. The whole world, as an effect, is so constituted as to instruct us in the nature of its cause. Thus the effect of motion in the world demonstrates a cause which has motion from itself, and in which all other motion must begin. Derivative life in living creatures must descend from a life which is original; that is, from a Being, *who*, as the Scripture speaks, *only bath immortality*.

The faculty of sight, so piercing and extensive in some creatures, and so necessary to all, directs us to an all-seeing Power, from which nothing can be hid. He that made the eye must see with perfect sight, and be the witness of our secret thoughts. The appearance of mechanical art in animals, which is wonderful and incomprehensible in some kinds,

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is a specimen or emanation of that consummate art and skill which are in the Creator himself. Natural affection in animals toward their young is a proof that the Creator, who infused it, hath the same affection to his own creatures; especially to man; *for we are his offspring.* The workings of natural affection in the creature are appealed to, as a sign or pledge of his own tender mercies to us: *can a woman forget her sucking child, that she should not have compassion on the son of her womb? Yea, they may forget, yet will not I forget thee.* Our Saviour insists upon a like example in nature to give us an idea of his own tenderness toward his people: *how often would I have gathered thy children together, even as a hen gathereth her chickens under her wings!* From these and other like examples we infer with certainty, that whatsoever is
good

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good or excellent in the creature, the original of all that goodness is in the Creator himself; the whole world being as it were a transcript or transfusion of the Divine Mind.

5. Lastly, from the consideration of those wonderful instincts which are found in living creatures, it should be our earnest desire and our highest ambition to have God for our teacher. The stork, the turtle, the crane, and the swallow, know their appointed times *, and find an unbeaten, invisible track through the air, and over the wide ocean to a distant climate. The spider spreads and suspends its web by the nicest rules of art. The beaver, the architect of the waters, builds an habitation which no human architect could contrive or execute. The

* Jer. viii. 7.

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bird weaves a nest of untractable materials, which it disposes and adjusts without any difficulty. The bee designs with unerring skill what no geometrician could teach, and measures its work in the dark. As a chemist, it has the grand secret of transmutation; extracting the sweetest of meat from the most poisonous of herbs. See how wise all these are, without the tedious forms of practice and experience! they have no elements to learn, but are well read by immediate infusion. From the same power, and in the same compendious manner, did the Apostles on the day of Pentecost attain to the knowledge of all languages without learning them. The working of God is to us as unaccountable in the one way of teaching as in the other. And doth not God still give to man a sense and a power superior to reason, when he
appears

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appears plainly to have given such a power to inferior creatures? Will not he still teach man, who continueth to teach the beasts of the earth and the fowls of heaven? Therefore if any man lack wisdom let him ask of God, who certainly will give to men as liberally as to brutes; and they have a promise that they shall be answered if they apply for direction. Where shall the ant or the bee go, but to the Creator, to learn what no reason of man can teach them? And whither shall man go but to the same teacher? The knowledge he wants is not from himself, but from the spirit of truth, and the word of Revelation; and now, by the sending of the Holy Ghost, and the publication of the gospel, we see that fulfilled which was written in the prophets, *they shall be all taught of God*: the grace of God hath been
given

given to all nations as universally as instinct hath been infused into all the kinds of living creatures: and so God is just and equal in all his works: what we have not in the ordinary way of nature, we obtain in the extraordinary way of grace; which is the better and the wiser way upon all accounts; and he, who pretends to have by nature what God giveth by grace, is more unprovided, and in a worse condition, than the beasts that perish.

6. Upon the whole; the animal world sets before us the most evident assurances of the Divine wisdom, power, and goodness: and *our duty*, in respect to this subject, is equally plain from what has been said. As the government of all creatures is committed to man by the Creator, not obtained by chance, it must be considered as a *trust*,
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which we are seriously and faithfully to discharge. We think few men are fit to be kings, and are strangely apprehensive of despotism: yet is every man an absolute monarch over these poor brute subjects; often shamefully abused by the wanton, the passionate, and the hard-hearted! *A righteous man*, who doeth good from a sense of duty, *regardeth the life of his beast* *: he abstains from all cruelty: he rewards the labour of his brute servants and domestics, and delights to render their lives as easy and comfortable as he can; knowing that he must give an account of this as of every other trust. In their natural capacity he uses them for his benefit with thankfulness to their Maker: in their intellectual application, he derives im-

* Prov. xii. 10.

provement to his mind from the contemplation of their natures. That man is a poor animal, not worthy of the name of a man, who looks upon beasts as beasts look upon him, and learns nothing from them; when a wise man may gather so much instruction, to serve him in every relation of life, whether natural, social, civil, or religious.

When we see what wisdom is found in the beasts of the earth and fowls of the heaven; how they perform what surpasses the power of reason, because God worketh in them; let us apply to their teacher, that he may assist us in all the works necessary to the saving of our souls: that we may be as wise for the next world as they are for their well-being in this world. Whatsoever gifts and talents are necessary to them,

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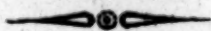
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they have by nature without asking; for they cannot ask: what we want, we must pray for: God having made his teaching unto us an object of choice, and endued us with speech for the great ends of praying to him and praising him. To Him therefore, who is only wise, who only hath immortality, the Lord and giver of life, who is magnified in all his works, even the Father, the Son, and the Holy Ghost, three persons and one God, be ascribed all honour, glory, power, and dominion, now and for evermore. Amen.

SERMON

SERMON III.

ON THE
EARTH AND ITS MINERALS.



GENESIS I. 9, 10.

And God said, let the waters under the heaven be gathered together unto one place, and let the dry land appear: and it was so. And God called the dry land earth, and the gathering together of the waters called he seas: and God saw that it was good.

THE earth is generally considered as the place of man's habitation, and the theatre of those various actions which have filled the pages of history. When

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we take the earth in this sense, we find it a bad and a troublesome world, a scene of error and confusion, in which the exploits of the mischievous bear away the prize from the actions of the virtuous, and the most wicked of men are celebrated as the benefactors of mankind. Here warlike nations have extended their borders, and erected kingdoms, which appeared in great splendour for a time, to serve the purposes of God's providence, and then vanished away like a fiery meteor of the night. Here have busy men, by fraud and violence, obtained large possessions, which soon changed their owners; and raised magnificent buildings, which are fallen into the dust. Thus do all the works of men upon earth pass away, while the earth itself, which is the work of God, and is innocent of all the evil that is done upon

upon it, standeth sure, and his building suffereth no decay.

This is the earth which I would now propose to your consideration: the natural history is very different from its political; and, I trust, we shall find it both an agreeable and an edifying subject.

Writers, who have given us descriptions of the natural world, have divided it into three grand departments or kingdoms, of *plants*, *animals*, and *minerals*. Of plants and animals I have treated in two former discourses; and I shall proceed now to the consideration of the earth and its minerals; in which we shall every where see the most evident proofs of the wisdom and goodness of God, and by which the truth of his revelation will be illustrated and confirmed.

I shall enter into no curious theories; nor will there be any occasion for it. The great outlines of nature are fittest for all the purpose of christian edification. The plainest things, and such as are best understood by every capacity, are generally the most wonderful, and the most improving to the mind that meditates upon them. Where there is much curiosity and difficulty, there is frequently less profit.

The words of the text relate the generation or birth of what is called *the Earth*; that immense body of land and water, which human writers call *the terraqueous globe*: from which we learn, that, as the *dry land* did not appear till the *waters were gathered together*, the land was formed under water. The wisdom of this mode of formation is evident; although the progress of it must be above
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our comprehension. For in water all the materials of the earth were easily moved; and by means of water, solution, separation, association and subsidence are manifestly promoted; and accordingly, by those who dig into the earth, its solid materials are found to be duly *sorted*, and have the appearance of a *sediment*, which had once floated in water, and afterwards settled out of it. And if the strata of the earth in mountains are not now parallel to the horizon, but often very oblique, and sometimes nearly perpendicular, yet the construction of such masses shews that they had settled in a regular form, and were brought by some force afterwards to their present situation.

As the earth appears to have been formed under the waters, it is as manifest, to every attentive observer, that
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the waters did once retire from the whole surface of the earth. When we compare small things with great, we find, that as the land and the channels of rivers are worn into precipices, pits, and winding furrows, by the departure of *occasional* inundations, so the surface of the earth, upon a scale proportionably larger, doth every where present to the sight the effect of descending waters. From the tops of the highest mountains, it is furrowed with channels; which, meeting others in their descent, grow wider and deeper, and wind about, as water doth in its progress, till they fall into the bed of some river, or lead us down to the sea, into which they retired when they subsided from the land.

From this retiring of the waters, we derive the inequality of the earth's surface: and to that inequality we owe the generation

ration of springs and rivers, the feeding of metallic ores and minerals in the fissures of the earth, and the regular draining off of waters, with an uninterrupted course, toward the sea. And to the great water-courses of the earth we owe most of those prospects which delight the eye. The waters, which once covered the earth, having forced their way down to the sea, left a way open for other waters ever after, over the whole face of the earth. Let the stream start from the higher grounds, and it will no where be detained till it falls into the ocean; which is a wonderful provision of divine providence, though not commonly attended to; and how it could have been brought to pass by any other mode of formation but that related in the Scripture, doth not appear. The elegant serpentine disposition of vallies, occasioned by the descent

scient of water, constitutes the chief beauty of our prospects. Where the soil is soft and moveable, these cavities are easy and gradual, and the bottoms are rich with the vegetable matter which has been washed off from the higher grounds. But in lands of an harder texture, rocks are undermined and overthrown; frightful precipices are formed by their fractures; and the vallies are rough with stones and rubbish. Yet we are no losers: for here the lines of nature are bolder. Where the face of a country is abrupt and irregular, it becomes sublime and magnificent; as a building in ruins makes a better picture, and is a fitter subject for a painter than where it has a flat and regular face. A new building, which is the production of human art, hath a littleness about it, from the uniformity of its lines; but when time

and the elements have done their work upon it, it approaches nearer to the grandeur of nature.

The sea, considered in itself, with the periodical motion of its tides and its occasional commotions by winds and storms, gives us a stupendous idea of the power and greatness of God, who hath this raging element so much under his command, that he is represented to us as holding the seas and the waters of the world in *the hollow of his hand*. Nor is his goodness less evident than his power: for the agitation of the sea, by the daily reciprocations of the tides, contributes to the purity and wholesomeness of the air; the labour of man is assisted by the advance and retreat of the waters through tracts of inland country. The sea, which seems to divide the inhabitants of the world from each other, keeps up an intercourse

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tercourse more effectually between the most distant parts of the globe. Mankind are likewise abundantly fed by the waters of the sea; wherein the creatures of God multiply in a much greater proportion, than by land, and are all maintained without the cost or attendance of man: they are a singular flock, which have no shepherd but the Creator himself, who conducts them, at different seasons, in unmeasurable shoals, to supply the world with nourishment.

From this hasty survey of the earth, we cannot but be struck with the many ends which are answered by the generation of the earth from the waters of the sea, although we have considered but a part of them.

When we examine the substance or matter of the earth, we find all things useful, all administering in various ways
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to our support and convenience. Even the very dirt we tread upon is a compost of rich principles, which supply the necessary nourishment to plants: and when particles from an offensive putrid mass of earthy matter are diffused through the frame of a vegetable, they put on an appearance of beauty, which is dazzling to the eyes, and emit a fragrance, which is ravishing to the sense. If such a thing had not yet been, and we were told that it would be, mortals affecting wisdom would have signified their doubts; as when it was questioned *what the rising from the dead should mean.*

Below the surface of the earth, we find the various sorts of stones; the ores of metals and minerals; and the stones which are called *precious*, from their beauty and rarity. The common uses of stone in building, and the several degrees
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of them from the coarsest rock to the finest marble, are well known: but still, the situation of stone, as it lies in the earth, with the property of that stone which is most ordinary, are worthy of particular consideration. Beds of stone, as they lie in the quarry, are parted here and there with perpendicular cracks, by means of which the largest masses become accessible, and subject to such forces as will separate and raise them up: and unless the beds of stone had been thus naturally parted, all the art of man would have been insufficient to extract stones from the earth, for the common uses of life. Some are of such a grain that they will split like wood, and may be shivered, even without a tool, into thin plates, by the force of the weather. But wonderful above all is the property of the limestone; which, when its native
moisture

moisture is totally expelled by fire, imbibes water with such force that it falls into an impalpable powder, and forms a cement by which separate stones are indissolubly joined into one body: and it holds them together more firmly at the end of a thousand years than it did at first. This is a discovery of such importance in the art of building, that it is probably as ancient as the art itself. The use of stone and mortar is spoken of as known before the building of *Babel*: and how it could be found out, doth not appear; because, I think, there is no operation in the common course of nature which could lead to it.

It would answer no purpose here to recount the various sorts of opaque stones; some curious for their beauty, others excellent for their use. The flint enables us to produce fire, of which no creature

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but man hath the use and management. The fiercest of wild beasts fly from the sight with terror ; and dread that fire which is kindled by man, as man himself dreads the fire of lightning which is sent from heaven.

In regard to the common stones of the earth, there is a certain fact which must excite the curiosity of those who attend to it. Of the pebble kinds, the greater part are formed out of fragments of stone, spar, and marble rounded by trituration in water ; of which kind millions are agitated to and fro, and worn by the motion of the tides upon the shores of the sea. The inland parts of the earth, to the greatest depths, contain these pebbles ; which, being the production of the sea, could never have been formed where they are found, and must, therefore, have been originally lodged by water in
places

places which are now remote from the sea. The same may be said of an immense quantity of sand, which, though it is now lying in dry beds of earth, has the certain marks of trituration by water.

Metals and minerals, which are the more valuable productions of the earth, are, in form and appearance, but another kind of stones; under which name they are mentioned in the book of Deuteronomy; where Moses commends the promised land to the people, as a land whose *stones are iron*, and out of *whose hills they might dig brass*; not in the *form of brass*, but of *stones*, out of which brass might be extracted, and compounded by the labour of man, and the rules of art. All the treasures of the earth are found in an imperfect state, which calls for the arts of chemistry, and

makes work for the fires of the refiner ; but, when due pains have been bestowed upon them, then we discover what a pure and splendid nature is given to them by the Creator. Who would think that burnished gold, and polished steel, should have been in an obscure state, like the stones of the earth? The mind of man improved by education is just as different from the same mind in the state of nature.

Such is the richness and brightness of the several kinds of metals, that it hath been the custom with men, from time immemorial, to give to the metals of the earth the same names as to the lights of heaven, according to their *colour* and their *dignity*. Gold is allied to the *sun*, from its yellow colour, and its splendor; silver to the *moon*, from its whiteness, and as being next in dignity to the sun.

Mercury

Mercury or quicksilver takes its name from the planet nearest to the sun; copper from the planet next in order: iron, tin, and lead, were given to the remaining planets more remote from the sun.

The natural history of the metals seems to have had a considerable share in the mythological mysteries of heathenism. *

* *Copper* had its name from the island of *Cyprus*, where the use of brass was said to have been first invented; (In *Cypro*, ubi prima fuit æris inventio. *Plin. Lib. 34, cap. 2.*) and hence we may account for the mystical dedication of that island to *Venus*, the *Cyprian* goddess, (*Diva potens Cypri. Hor.*) who agrees in name with a *planet* in the heavens, and with the ore of *Copper* in the earth. On this plan, it is very probable that the fable of *Jupiter's* burial in the island of *Crete* might, at the bottom, be nothing more but a mythological mode of signifying to those who were in the secret, that *tin* was found under ground in that island.

But leaving these fanciful doctrines of men, who gave the honour of God's works to their idols, we may go on from the metals to the gems, which are of an higher order, and a more refined nature. Here the *glory of the terrestrial* approaches very near to the glory of the celestial bodies; especially in the diamond, the prince of precious stones; which vies in purity and brightness with the matter of the heavens; and appears like embodied light; insomuch that, if the fluid of light could be fixed into an ice, as the fluid of water is, we may imagine that something like the diamond would be produced. It is remarkable, that the *brightest* matter of the earth is united with the *richest*, for the formation of a precious stone; the various sorts which receive their colour from some metal; as the *ruby* from
gold;

gold; the *emerald* from *copper*; whence emeralds were commonly found in the copper mines of Cyprus *. When the metals are united to a chryſtalline, or *pellucid* baſis, they form a gem: but, if to an opaque earthy matter, they form the high-coloured earths of the painters, which all derive their beauty from ſome metallic mixture. It is further remarkable, that the chryſtalline matter and the metal which gives it colour are united in nature by the mediation of water: whereas, if we attempt to unite them by art, in the artificial gems, we are obliged to have recourſe to the violence of fire, to diſſuſe the colouring parts through the cryſtal. This, and ſome other like inſtances of the difference between the che-miſtry of art and the che-miſtry of

* Theophrastus.

nature, should make us cautious of pronouncing too hastily concerning subterraneous productions; lest we take that for the effect of fire, which was, in reality, the effect of water.

Instead of naming the several minerals which are dug out of the earth, I shall rather direct your attention to two which are of more consequence than the rest: these are *salt* and *sulphur*. Salt preserves from putrefaction; and, being soluble in water, it keeps the sea sweet and wholesome. Where the heats are greater, the sea has more salt; because there is more danger of putrefaction; which teaches us, that the sea was not salted *by accident* but *by design*. *
As the doctrine of truth in the Gospel
saves

* The late Dr. *Halley*, supposing that the sea grew salt by accident, in tract of time, from the waters washing away some salt from the land,
proposed

saves the world from moral corruption, so doth salt preserve it from natural corruption; whence the one is used as a figure of the other. *Ye are the salt of the earth*, said Christ to his preachers: without you the world would be as putrid as flesh is found to be without the use of salt.

The other *mineral* substance is sulphur; of universal effect, as the cement of nature for *uniting the parts of metals into masses*, or *mineralizing* them, and giving them many of their properties. It is also the grand combustible of the world; which, as it descended from the heavens in rain for the destruction of Sodom, so is now the chief cause of those dreadful

proposed a new method for finding the age of the world from the saltiness of the sea. See *Phys. Disq.* where some farther observations are made on this subject.

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commotions which happen in the earth. When iron and sulphur and water meet together, a fermentation ensues, which, if strong enough, breaks out into actual fire and flame. It hath pleased God, for wise ends, to lodge these different principles near to each other, in many places, that their mixture may present to our sight one of the most tremendous appearances in nature. When the sun shines upon the calmness of the ocean, we understand that God is benevolent as well as great; and, when the volcano rages, we are to learn that he is just and terrible in his wrath and vengeance. When the law was given on mount Sinai, the whole mount trembled, and burned with fire, and there were thunders and lightnings and a thick cloud upon it. Here were all the appearances of a volcano; and, as this manifestation of God

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at Sinai was intended to fill the hearts of the people with the fear of God, by shewing them how terrible he is in his judgment against those who break his law; so every burning mountain, at this day in the world, should inspire the same religious fear; and, I believe, generally does, to those who are spectators of it; declaring to the world, that God is the avenger of sin; and that the fires of nature, which are now but partial, and under the restraint of mercy and forbearance, shall at length break out to the burning of the earth and of all things therein. When the flood came upon the world, the fountains of the great deep were opened; the waters of the air were added to the waters of the earth, and all united their forces to execute the divine sentence: so at the last visitation of this world, all the fountains of fire shall

shall be opened: the burning mountains of the earth shall send forth all their hidden stores, while new ones shall be opened in all places: and the fires of the sky shall co-operate with the fires of the earth. Modern discoveries have taught us, that the sea, the earth, the air, the clouds, are replete with a subtile and penetrating matter, which, while at rest, gives us no disturbance; but, when excited to action, turns into a consuming fire, which no substance can exclude, no force can resist: so that the *elements*, which are to *melt with fervent heat*, want no accidental matter to inflame them: since all things may be burnt up by that matter which now resides within them, and is only waiting for the word from its Creator.

All the phænomena of nature speak some religious truth to those who have ears

ears to hear their voice. When we say this, we do not deny that volcanos may have a natural use in purging the earth and giving vent to combustible principles, which, if wholly confined, might shake and shatter the earth to pieces before the time. These things are very consistent, because the wisdom of God works for many different ends by the same means.

A review of the earth and its contents, however short and imperfect, must inspire us with an awful sense of the divine power and wisdom. But we are not to stop there: the natural history of the earth bears an unanswerable testimony to the truth of revelation; and we should never fail to apply it to that purpose, when an opportunity offers. The Scripture, which tells us that this earth, on which we live, is now under sentence to be

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be destroyed by fire, doth also teach us, that it hath been once destroyed already by water: of which destruction the earth still bears such evident marks, that the belief of it is as obvious to every observer of nature, as it is necessary to a Christian. From the surface of the earth we understand, that the whole was once under water; which descended, with an accelerated velocity, from the land to the seas, toward which all the furrows of the earth are directed, and in which they terminate. Then, if we search under the earth, we find, that as man is not in the state in which God first made him, but fallen into disorder and sinfulness; so the earth has undergone some natural revolution, which, in part, dissolved its substance, and lodged within it such bodies as must have been the remains of a former earth, because they could not possibly

possibly be the productions of the present. Bones of animals, shells of fishes, fruits of trees, are found buried at all depths, and even in the midst of the hardest stone and marble. Whence we are to argue ; 1. That these bodies were transported and deposited by a flood of waters; because most of them belonged to the sea. 2. That the matter of the earth must have been in a state of solution when this happened; because it could not otherwise have inclosed sea shells, and filled up their cavities through the smallest apertures. 3. That the flood was *general*, or common to the *whole world*; because these monuments of it are found in all countries of the earth; on the highest mountain, and in tracts most remote from the sea.

To account for a disorderly situation of things, out of their several places,
under

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under ground, we must apply to *water* or to *fire*; which two are the causes of all the changes in this globe. We cannot apply to subterraneous fire, because here is an effect which is universal, and subterraneous fire is a cause but partial and occasional; the marks of which, when compared with those of water, are but of small extent.* Besides, fire would have destroyed bodies which water preserved; such as the tenderest shells, the skins of scaly fish, the fruits and leaves of vegetables. All these would bear drowning and burying, but could never survive the devastations of fire. How could fire transport the productions

* The effects of fire, compared with those of water, may perhaps be nearly in the same proportion, as the forge of the smith, with its slags and cinders, when compared with the lands of the whole parish.

of all climates into one place? But if they floated on water, subject to winds, tides, and currents, such a thing might easily be: accordingly, we find the fruits of the East and West-Indies; bones, teeth, and shells from fish of different seas; the elephant of Africa, the tortoise of America, all near to one another in the same spot, * as if laid up for a testimony to the truth of the Holy Scripture, which alone gives us a faithful account of this great revolution in nature. When we are informed, that the earth we now inhabit is the *burying-place* of a former earth, it is as reasonable that we should dig up the remains and ruins of it, as that we should find the bones and coffins of former generations in the earth of a church-yard.

* What is here said is verified in the island of *Sheepy* in *Kent*.

Our

Our subject will become more edifying, if we examine what use hath been made of some parts of it in the Scripture.

1. Thus, for example, every man is to consider himself as clay in the hands of a potter, and to submit himself, with resignation, to the appointment of God, who gives to all men their proper stations and uses in life, as the potter forms some vessels to mean, and some to honourable, offices; and it is as vain for any man to quarrel with the ordination of heaven, and throw himself out of that sphere of life in which God hath placed him, as for the clay to murmur against the design of the potter. There is an ancient fable of Eastern original, (for the son of *Sirach* hath it *) which relates the folly of the

* Ecclus. xiii. 3.

vessel of earth in joining itself to the company of the vessel of brass; in consequence of which it was broken to pieces.

2. The treasures of the earth are buried within it; so that they cannot be discovered and brought forth without the labour of man: yet they are not placed so deep, as to render our labour ineffectual. Thus hath God ordained in every other case: nothing, but what is worthless, is to be found by the indolent upon the surface of life: every thing valuable must be obtained by labour; all wisdom, all science, all art and experience, are hidden at a proper depth, for the exercise of the wise; and they, who do not spare their labour, shall not be disappointed in their search. The treasures of wisdom, in the word of God, do not lie upon the surface of the letter, for

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every superficial reader to observe them: therefore, where it is said, *Search the Scriptures*, the word implies that laborious kind of searching, by which the treasures of the mine are discovered under ground.

3. The properties of metals are very considerable, and would afford us much instruction, if the limits of this discourse would admit of it. As gold stands the test of fire, such is the constancy of true piety, which grows brighter and purer with every trial. And, as gold cannot be pure without being refined in the furnace, so cannot any man be fit for God's acceptance, till he hath first *endured temptation*. The father of the faithful was put to the fiery trial of offering up his own son for a sacrifice, that he might be an example to all his children: to whom this warning is given by the son
of

of Sirach, *My son, if thou come to serve the Lord, prepare thy soul for temptation—for gold is tried in the fire, and acceptable men in the furnace of adversity.** I suppose this rule to be so certain, that human life never did, nor ever will, admit an instance to the contrary.

4. In the vision of Nebuchadnezzar, king of Babylon, the four great monarchies of the world are signified by the four principal metals, gold, silver, brass, and iron. The Assyrian monarchy has the pre-eminence, as well in dignity as in order of time, and is compared to gold. *Thou*, said the prophet Daniel to Nebuchadnezzar, *art this head of gold:* from which interpretation, his *image* of gold seems to have been presumptuously derived; the proud king, not content

* Ecclus. ii. 1—5.

with being the head, assumed to himself the whole body of worldly empire.

As silver, brass, and iron, have less value than gold, the monarchies of Persia, Greece, and Rome, which succeeded, must have had less splendor and dignity than the Assyrian; and the Roman must have been the basest of all, if the Scripture is just in its comparison. If we were to enter into the question, how kingdoms are debased, we might obtain some light from the case of the Roman empire, as it is stated in this prophecy. This empire then, though strong as *iron* in war, was of a baser nature than those which preceded, because it was unnaturally compounded of *miry clay* mixed with its iron; which two would never incorporate. It was compounded of *military power* and *popular authority*; to

unite which, all attempts were unsuccessful; and, consequently, with all that hardness of iron, with which it *bruised* and *broke in pieces* other nations, there was a constitutional weakness; by reason of which, it was vexed and broken at home, with eternal balancings and divisions: and, when it had conquered the world, it became its own executioner. The words of this prophecy are very remarkable, when applied to the character and constitution of the Roman state. It was *partly strong* as iron in military force, and *partly broken*, from this unnatural mixture in the materials of its government. By the mingling of *iron* with *miry clay*, as it is interpreted for us by the prophet, it was signified, that they of this kingdom should *minge themselves with the seed of men, and not cleave to one another, even*

as iron is not mixed with clay. Imperial power, in the Scripture, is a divine institution, of heavenly original; and to suppose it an human thing, and derive it from the power of the people, as the Romans did, is to mingle it with the feed of men, and debase the nature of it; of which the certain consequence is disunion and weakness: for no state can be strong in itself, which is founded on principles subversive of God's authority. Under the Assyrian monarchy and the Persian, and the kingdoms of Greece, in the age of Homer, there was no question concerning the origin of power; it arose afterwards amongst the Greeks; and the popular scheme attained its highest degree of absurdity under the Romans. Would to God it had never found its way amongst Christians; where it has done infinite mischief, and will probably

probably continue so to do, till it has undermined the peace of all mankind, and unhinged the whole political world! Majesty, when it is in kings, is where God hath placed it: honour is then in the fountain of honour; but the *majesty of the people*, which the enthusiastic vanity of the Romans hath so magnified, and in which they have been followed, for selfish ends, by libertines and deistical philosophers, is contrary to all the ideas of revelation, and is inconsistent with common sense. A *people* may seem to themselves to rise higher, as the *power of government* sinks lower; but it is all a deception; for nothing can be more evident than that nations are debased, in the estimation of the world, by the doctrines of anarchy. For which of the two is the most respectable; the house wherein
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there is a proper respect kept up; or that wherein there is none? The family of the nobleman, whose domestics are under his authority, preserves an appearance of greatness and elegance: but the publick house, where the people who fill it are upon a level with the householder, is a scene of vulgarity and disorder.

5. And now, what should be the end of all our researches into Nature and Scripture, but to delight in giving God the honour that is due to him? For his pleasure all things were made; and he will be pleased with men when they glorify him in his works. We should therefore call upon all nature to join with us in a Psalm of praise and thanksgiving, after the example of the royal prophet: *Praise the Lord, ye mountains and all hills, fruitful trees*
and

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and all cedars, beasts and all cattle—

*Let the heavens rejoice and let the earth
be glad; for the name of the Lord is
excellent, and his praise is above heaven
and earth.*

To Him therefore, &c.

SERMON

SERMON IV.

ON THE
NATURAL EVIDENCES
OF
CHRISTIANITY.

THE wisdom of God in the natural creation, is a proper subject of the lecture delivered in this place upon this occasion *: but as the knowledge of the Scriptures is not excluded, I may be permitted to bring them both together

* This Sermon was preached at *St. Leonard's, Shoreditch*, on Tuesday, in Whitsun Week, 1787, on Mr. Fairchild's Foundation.

into

into one discourse: for they illustrate one another in a wonderful manner: and he who can understand God as the fountain of truth, and the Saviour of men, in the holy Scripture, will be better disposed to understand and adore him as the fountain of power and goodness in the natural creation.

To those who search for it, and have pleasure in receiving it, there is a striking alliance between the œconomy of Nature, and the principles of divine Revelation; and unless we study both together, we shall be liable to mistake things now, as the unbelieving Sadducees did, in their vain reasonings with our blessed Saviour. *They erred, not knowing the Scriptures, nor the power of God:* they neither understood them separately, nor knew how to compare them together.

Men

Men eminently learned, and worthy of all commendation, have excelled in demonstrating the wisdom of God from the works of Nature ; but in this one respect they seem to have been deficient ; in that they have but rarely turned their arguments to the particular advantage of the Christian Revelation, by bringing the volume of Nature in aid to the volume of the Scripture ; as the times now call upon us to do : for we have been threatened, in very indecent and insolent language of late years, with the superior reasonings and forces of natural philosophy ; as if our late researches into Nature had put some new weapons into the hands of Infidelity, which the friends of the Christian Religion will be unable to stand against. One writer, in particular, who is the most extravagant in his philosophical flights, seems to have

persuaded

persuaded himself, and would persuade us, that little more is required to overthrow the whole faith and œconomy of the Church of England, than a philosophical apparatus; and that every prelate and priest amongst us hath reason to tremble at the sight. This is not the voice of piety or learning, but of vapouring vanity and delusion. Neither a *Bacon*, nor a *Boyle*, nor a *Newton* would ever have descended to such language, so contrary to their good manners and religious sentiments: the first of whom hath wisely observed, that the works of God minister a singular help and preservative against unbelief and error: our Saviour, as he saith, having laid before us two books or volumes to study; first the *Scriptures*, revealing the *will* of God, and then the *creatures*, expressing his *power*; whereof the *latter* is a *key* unto

unto the former.* Such was the piety and penetration of this great man. However, let us not take it amiss, that, at certain times, we are rudely attacked and insulted. Christians, under the temptations of ease and security, would forget themselves, and go to sleep: they are therefore obliged to their adversaries for disturbing them, that they may awake, like *Samson*, and discover their own strength. So little reason have we in fact to be terrified with the threatenings of our adversaries, that we invite them to enter with us upon a comparison between the word and the works of God. For it will be found true, as I shall endeavour to shew, that *the invisible things of God*, that is, the things concerning his Being and his Power, and

* See Bacon's Adv. of Learning, B. 1.

the œconomy of his spiritual kingdom, which are the objects of our faith, are *clearly seen from the creation of the world, and understood by the things that are made.*

Having much matter to propose, I must not indulge myself in the use of any superfluous words. A plain and unadorned discourse will be accepted rather for the meaning than the form: and as I am about to consider the works of God in a new capacity, I must bespeak your attention, not without a degree of your candour also, to excuse an adventurous excursion into an unfrequented path of divinity.

Let us enquire then, how the religious state of man, and the spiritual kingdom of God, as the scriptures have made them known to us; that is, how Christianity, as a scheme of doctrine, agrees
with

with the works of God, and the œconomy of Nature? In consequence of which it will be found, that the Christian Religion hath the attestation of natural philosophy; and that every other religion hath it not.

Our Bible teaches us these great principles or doctrines: that man is now in a fallen state of forfeiture under Sin and Death, and suffering the penalties of disobedience: that, as a religious being, he is the scholar of heaven, and must be taught of God; that the Almighty Father of men and angels gives him life and salvation by his Word and Spirit; in other words, by Christ and the Holy Ghost: that there is danger to us from the malignity and power of evil spirits: that a curse hath been inflicted upon the earth by a flood of water: that there is no remission of sin without shedding
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of blood; and that a divine life is supported in us by partaking of the death of Christ in the Paschal or Sacramental Feast of the Lord's table; that there is a restoration to life after death by a resurrection of the body; and lastly, that the world which we inhabit shall be destroyed by fire.

These are the principles, at least the chief of them, which are peculiar to the scriptures. He that believes them is a Christian: and if the works and ways of nature have a correspondence with these principles, and with no other, then ought every natural philosopher to be a Christian believer.

I. Let us proceed then to examine how the case stands. The unbelieving philosopher supposes man to be in the same state of perfection now, as when he came from the hands of his Creator.

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But the infirmities of his mind, with the diseases and death of his body, proclaim the contrary. When the death of man is from the hand of man, according to the laws of justice, it is an execution: and it is the same in its nature, when inflicted upon all men by the hands of a just God. The moral history of man informs us, that he offended God by eating in sin. His natural history shews us, that, in consequence of it, he now eats in labour and sorrow. The world is full of toil and trouble: and for what end, but that man may earn his daily bread? The hands of the husbandman are hardened, and his back is bowed down with the cultivation of the earth. Thorns and thistles prevail against him, and multiply his labour. While some are toiling upon the earth, others are doomed to work underneath it. Some

are exercised and wasted with works of heat: some for a livelihood are exposed to the storms and perils of the sea: and they who are called to the dangers of war, support their lives at the hazard of losing them.

The woman, who was first in the transgression, is distinguished by sorrows peculiar to her sex: and if some are exempt, they are exceptions which confirm the general law; and shew, that the penalty doth not follow by any necessity of Nature, but is inflicted.

Many are the unavoidable sorrows of life: but if we consider how many more are brought upon man *by himself*, it is plain his *mind* is not right: for if he had his sight and his senses, he would see better and avoid them.

Suppose human nature to be perfect; what is the consequence? We not only
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contradict our own daily experience; but we supersede the use of Christianity, by denying the existence of those *evils*, for which only it is provided. The whole system of it is offered to us as a cure for the consequences of the fall. From the accommodation of its graces, gifts, and sacraments to the wants of our nature, we have a demonstration that our minds are in a distempered and sinful state: as the drugs and instruments in the shop of the surgeon are so many arguments that our bodies are frail and mortal.

II. The scriptures declare farther, that man, thus born in sin and sorrow, would grow up in darkness and ignorance, as to all heavenly things, unless he were taught of God: whose word is therefore said to be a light. The case is the same in nature. For how doth man receive

the knowledge of all distant objects? not by a light within himself, but by a light which comes to him from heaven, and brings to his sight a sense of the objects from which it is reflected. What an uninformed empty being would man become in his bodily state: how destitute of the knowledge of all remote objects, but for the rays of light which come to him from without? Such would he be in his religious capacity without the light of revelation, which was therefore sent out into all lands, as the light of the sun is diffused throughout the world: *The people that walked in darkness* (such is the state we are born to) *have seen a great light: they that dwell in the land of the shadow of death, upon them hath the light shined.* * The scriptures declare that we

* Isa. ix. 2.

are in a state of stupidity and death, till we are illuminated by the Gospel: *Awake thou that sleepest, and rise from the dead, and Christ shall give thee light.* * But they cannot make our souls worse than our bodies would be without the visible lights of heaven; and therefore in this respect, the physical state of man answers precisely to his religious state; and if we duly observe and reflect upon the one, we must admit the other also, or oppose the testimony of our senses.

III. The gospel informs us, that there is a light of life to the soul of man, and a divine spirit of God which quickens and inspires; and that the whole œconomy of grace is administered to us by the persons of the Son and the Holy Ghost. And are not the principles of

* Eph. v. 14.

man's natural life maintained by a parallel agency in nature? Do we not there also find a light to animate, and a spirit to inspire and give us breath? The divine spirit, from his nature and office, takes his name from the air or natural spirit of the world, which supplies us with the breath of life. On the day of Pentecost he descended from heaven under the outward sign of a rushing mighty wind; that from his philosophical emblem we might understand his nature and operations; who, like the wind, is invisible, irresistible, the medium of life and the inspirer of the prophets and apostles, who all spake as the *spirit gave them utterance*. The air is the instrument of speech, and the vehicle of sound. Such was the divine spirit to the apostles; by whose aid and operation, *their sound went out into all lands*.

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The ways of the Spirit of God in the birth of man unto grace, are hidden from us: we distinguish him only by his effects: so it is in nature; we hear the sound of the wind, but we cannot tell whence it cometh, nor whither it goeth. Thus did our Saviour himself illustrate the operations of the Holy Ghost from those of the air: and, what is very remarkable, he communicated the Holy Ghost to his disciples under the outward sign of *breathing upon them*.

In the invisible kingdom of God, there is a *sun of righteousness* which rises upon a world that lieth in darkness; raising up the dead to a new life, and restoring all that sin and death had destroyed. So doth the visible world present to us the great luminary of the day, whose operations are in all respects like to those of the sun of righteousness. In the morning

ing it prevails over darkness, and in the spring it restores the face of Nature.

When the scriptures say that the powers of the word and spirit of God are necessary to the souls of men; they say no more than what the most scrupulous philosophy must admit in regard to their bodies: for certainly mankind cannot subsist without the sun and the air. They must have light, to *live* by as well as to *see* by; and they must have breath, without which they can neither live, nor speak, nor hear.

We are to argue farther; that as we must suppose a sun to shine before we can suppose a man to exist upon earth: so, by parity of reason, the divine light was pre-existent to all those who are saved by it: and to presume that Jesus Christ, who is that light, is only a man like ourselves, is as false in divinity, as
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it would be false in philosophy to report the sun in the heavens as a thing of yesterday, and formed like ourselves out of the dust of the ground. Doth not philosophy teach us, that the elementary powers of light and air are in nature supreme and sovereign? for, is there any thing above them? Is there a sun above the sun that rules the day; and is there a spirit above the wind that gives us breath? therefore, so are the persons of Christ and the Holy Ghost supreme and divine in the invisible kingdom of God. If not, it must lead us into idolatry and blasphemy, when we see them represented to us in the scripture by these sovereign powers in nature. *God is Light*, and *God is a Spirit*; therefore, that person who is called *the Spirit* must be divine; and Jesus Christ who is *the true Light* must be *the true God*.

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Wheresoever we go in divinity, thither will philosophy still follow us as a faithful witness. For if we are assured by revelation, that there is a power of divine justice to execute vengeance on the enemies of God, and which shall destroy with a fearful destruction the ungodly and impenitent whenever it shall reach them: we find in nature the irresistible power of fire, which dissipates and destroys what it acts upon, and which in many instances hath been applied as the instrument of vengeance upon wicked men. Sacrifices were consumed by fire, to signify that wrath from heaven is due to sin, and would fall upon the sinful offerer himself, if the victim did not receive it for him by substitution. When the law was given on Mount Sinai, the heavens flamed with fire, and the mountain burned below, to give the people a
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sense of the terrors of divine judgment. With allusion to which exhibition, and other examples of the actual effects of his wrath, God is said to be *a consuming fire*: and happy are they who *regard the power* of it, and *flee from it*, as Lot and his family fled from the flames of Sodom.

IV. Another doctrine, peculiar to the scripture, is, the danger to which we are exposed in our religious capacity from the malignity and power of the Devil; whose works are manifest, though he himself is invisible. But the natural creation bears witness to his existence, and to all his evil properties; where the wisdom of God hath set before us that creature the Serpent, a singular phænomenon of the same kind; whose bite diffuses death so suddenly and miraculously through the body, that he may be
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said, in comparison of all other creatures, to have the *power of death*. He is double tongued and insidious; often undiscovered till he has given the fatal wound. In a word, he is such a pattern of the invisible adversary of mankind, who was a liar and a murderer from the beginning, that the hieroglyphical language of the Bible speaks of him in the history of the first temptation under the name of *the Serpent*. The wicked who are related to him as his *seed* or *children*, are called a *generation of vipers*; by which figurative phrase it is literally meant, that they were of *their father the Devil*.

In the modern systems and schemes of those who affect the philosophical character, we are not always sure of finding a God: but we are sure never to find a Devil: for as the Heathens of old offered sacrifices to him without understanding that

that they did so ; in like manner do some people of these days work under him without knowing him. Yet certainly, the scripture, by its application of the word *Serpent* to the *Tempter* who brought Sin and Death into the world, hath referred us to the natural creation for the properties of the Serpent-kind ; and from those properties every naturalist may learn what the Devil is, and what we have to fear from him, more accurately and effectually than any words can teach. What he finds in the natural Serpent he must apply to another invisible Serpent, who can think and reason and dispute the veracity of God ; which the common Serpent never could. How came so fearful and cursed a creature into the works of God ? Certainly for the wisest end : that men might understand and abhor and avoid the enemy of their salvation. The world was made,

as the Scriptures were written, for our learning; and unless the Serpent were found in it, there would be a blank in the creation, and we should have been to seek for some ideas, which are of the last importance to the mind of man.

Other ideas, nearly related, may indeed be collected from the contrariety between light and darkness; with their figurative alliance to moral good and evil. The power of Satan hath the like effect on men's souls as darkness hath upon their bodies; and the scripture calls it the *power of darkness*. If the enemies of God's religion are called the *seed of the Serpent*, in opposition to the sons of God; so are they also represented to us as children of darkness, in opposition to the children of light. *What communion, saith St. Paul, hath light with darkness; what concord hath Christ with Belial,*

Belial, or what part hath he that believeth with an Infidel? The ancient Persians, who were given to speculate as Philosophers on the principles of their Theology, argued from the course of Nature, that there are two contrary principles of Good and Evil in the world of Spirits: that there is a malignant power acting in opposition to the benign goodness of the Creator, as darkness, in the vicissitudes of day and night, holds divided empire with light. Which speculations, properly corrected, are agreeable to the imagery of the scripture; in which the author of evil is called the *power of darkness*; and, in his capacity of a destroyer, is compared to lightning, which, like Lucifer, *falls from heaven* to do mischief upon earth.

V. Another doctrine of Revelation is the execution of a curse by the waters of

a flood; which obliges us to examine how it agrees with the natural history of the earth. It was impossible to know that this catastrophe was universal, but by Revelation; but when known, it is confirmed as a fact by the same proofs of it occurring to us in every part of the known world. The curvatures, furrows, and channels, on the whole face of the earth, open to common observation, are so many marks and monuments of the forcible effects of descending waters. The relics, fragments, and bones of marine productions, every where found under the earth, shew that the sea covered the land, and that the present world, on which we now live, is the burying-ground of a former, on which that curse was executed, which God pronounced at the beginning. The natural history of the earth, as bearing this testimony

mony to the Flood of Noah, has been very troublesome to our Infidel-Philosophers; and the improbability and weakness of some theories, with the wild extravagance of others, advanced to disguise this plain fact, shew that its evidence is stubborn and untractable.

VI. The derivation of a principle of life from the death of Christ, and the remission of sin by the shedding of his innocent blood, are doctrines essential to the Gospel, and every way agreeable to the condition of man's natural life: for we live by the death of innocent animals, who lay down their lives for our sustenance, not for any fault of their own. Such creatures as are hurtful and not fit to live, are not fit for us to eat. The act of killing clean beasts in sacrifice, and the sprinkling of their blood, and the feasting upon their flesh, had un-

doubtedly an intended correspondence with the sacrifice of Jesus Christ, and the support of our spiritual life by a participation of his death. The whole institution was prophetic, and the scriptures are copious in the application of it. And though the act of slaughtering innocent creatures is not now a religious act, as it used to be, the *rationale* of it is still the same; and it will speak the same language to the end of the world; it will always be declaratory of the salvation of man by the death of an universal sacrifice. The insensible people who trade in the slaughter of innocent animals, and shed their blood by profession; and they who feed upon them by daily custom, never think of this: but the universal practice of mankind speaks, without their understanding it, that which Caiaphas prophesied without knowing what he

he said, *it is expedient that one man die that the whole people perish not.* It is expedient that the innocent should die to feed our bodies: let any man deny it if he can: and it is equally expedient, that Jesus Christ should die to feed our souls.

Some Philosophers of antiquity, ignorant of the terms man is now upon with his Maker, refined upon the traditional rites of sacrifice and the priesthood (which are nearly as ancient as the world) and reasoned themselves into an abhorrence of animal food. They exclaimed against the use of it, as barbarous, and unworthy of a rational creature: especially as the lot falls upon the most inoffensive of animals, whose dispositions and services have a claim upon us for kindness and protection. But these are doomed to die by the wise appointment

of God, and by these men live; as Jesus Christ the righteous, with the meekness and innocence of the *Lamb* was brought to the slaughter; that through his death we might have life eternal.

VII. The resurrection of the body, which comes next in order, is no where taught but in the scriptures. The apparatus of the philosopher can furnish no argument against it: and God's apparatus is clearly on the side of it. For if it be examined by the light of Nature, that is, by the light reflected from natural things, it becomes a reasonable, and almost a natural doctrine.

It is evident that man's body was made of the dust of the earth, because we see that it returns into earth again. Philosophy therefore may argue, that as God formed man's body of the dust at first, he can as easily restore and raise it from
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from the same afterwards. That he will actually do this is promised to us in the scripture; and on that promise Nature is giving us a lecture every day of our lives. Many animals, after a torpid state, scarcely distinguishable from death, recover the powers of life at the proper season by the influence of the sun: some after submerſion in water during the whole winter. Some crawl for a time as helpless worms upon the earth, like ourſelves; then they retire into a covering, which answers the end of a coffin or a ſepulchre, wherein they are inviſibly transformed, and come forth in glorious array, with wings and painted plumes, more like the inhabitants of heaven, than ſuch worms as they were in their former earthly ſtate. This transformation is ſo ſtriking and pleaſant an emblem of the preſent, the intermediate, and the glorified

glorified states of man, that people of the most remote antiquity, when they buried their dead, embalmed and inclosed them in an artificial covering, so figured and painted as to resemble the caterpillar or silk-worm, in the intermediate state: and as Joseph was the first we read of that was embalmed in Egypt, where this manner prevailed, it was very probably of Hebrew original.

The vicissitudes of night and day instructs us farther on the same subject. The sun sets to rise again; the year dies away into the winter, and rises to verdure and beauty in the spring. Sleep is a temporary death from which we daily awake; insomuch that in many passages of the scripture sleep and death are the same thing, and he that *rises from the dead*

dead is said to *awake out of sleep*. * The furrow of the field is a grave, out of which the seeds that are buried rise to a new and better state. Their death and burial, which seems to be their end, is the beginning of their life: *It is not quickened except it die*. The allusion to plants and seeds is very common in the scripture, to illustrate the present and future state of man: and if it reminds us, that *all flesh is grass*, and *all the goodliness thereof as the flower of the field*; it makes us amends, by assuring us, that *our bones shall flourish as an herb*, and that every seed shall have its own body.

VIII. The destruction of the world by fire is the last doctrine I shall take occasion to speak of: which, though ne-

* See Daniel xii. 2.

ver unreasonable, and admitted even by Heathens of old time; is now more apparent than ever, from the late improvements in experimental philosophy. Indeed, we may say, the world is already on fire: for as Sinai, with its smoke and flame, was a *positive*, so is every volcano a *natural* prelude to the burning of the last day. The earth, the air, the clouds, the sea, are all replete with a subtile penetrating fire, which, while at rest, is neither felt nor observed, and was absolutely unknown to some of the most learned for ages; till accidental discovery hath now laid open the treasures of fire in heaven and earth to all that have the use of their sight and senses. The publication of the philosophy of fire hath been so sudden and so universal, and is so wonderful in itself, that it seems to be second

cond to the publication of the Gospel : at least, there is no event in philosophy or literature that comes near to it.

In this element we live and move; and, perhaps, so far as our frame is mechanical, we are moved by it. When excited to action, it turns into a consuming fire, which no substance can exclude, no force can resist. The matter of lightning, which seems to break out partially and accidentally, is now found to be constitutional and universal in the system of Nature : so that the heavens, which, according to the language of the scripture, are to *melt with fervent heat*, want no foreign matter to convert them into fire. What is called *phlogiston* can rise in a moment from a state of quiescence to a state of inflammation; and it discovers itself in many bodies where we should little expect to find it. The earth and

the works that are therein carry within them the seeds of their own destruction; and may be burnt up by that element which now resides within them, and is only waiting for the word from its Creator.

Upon the whole then, philosophy, so far as the term signifies a knowledge of God's wisdom and power in the natural creation, which is the best sense of the word; this philosophy, I say, is so far from being adverse to true religion, that with all the common evidences of Christianity in reserve, we may venture to meet the philosopher upon his own ground: we have nothing to fear from the testimony of Nature: we appeal to it: we call upon every man of science to compare the gospel which God hath revealed, with the world which God hath created; under an assurance, that
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he will find *the latter* to be *a key unto the former*, as our noble philosopher hath well asserted. We have ventured to try this comparison upon the general plan of Christianity, and we see how it answers.

And if Nature answers to Christianity, it contradicts Deism: and that religion cannot be called *natural* which is contradicted by the light reflected upon our understandings from natural things. The Socinian is nearly in the same situation with the Deist: and they may both join together in calling upon Nature, from morning until night, as the Priests of Baal called upon their Deity; but there will be *none to answer*; and philosophy must put out one of his eyes before it can admit their doctrines. In short, take any religion but the Christian, and bring it to this test, by comparing

paring it with the state of Nature, and it will be found destitute and defenceless. But the doctrines of our faith are attested by the whole natural world. Wherever we turn our eyes, to the heaven or to the earth, to the sea or the land, to men or to beasts, to animals or to plants, there we are reminded of them. They are recorded in a language which hath never been confounded: they are written in a text which shall never be corrupted.

The Creation of God is the School of Christians, if they use it aright. What is commonly called *the World*, consists of the forms, manners, diversions, pursuits, and prospects, of human society. But this is an artificial world, of man's making; the subject of his study, the object of his ambition. The natural world, of God's making, is full of wonder

der and instruction; it is open to all, it is common to all. Here there can be no envy, no party, no competition; for no man will have the less for what his neighbour possesses. The world, in this sense, may be enjoyed without fraud or violence. The student in his solitary walk, the husbandman at his labour, the saint at his prayers, may have as much as they can desire, and have nothing to repent of: for they will thus draw nearer to God, because they will see farther into his truth, wisdom, and goodness.

Some have expressed their astonishment at the choice of hermits and men of retirement, as people who have fled from all the enjoyments of life; and consigned themselves to melancholy and misery. They are out of the world, it is true; but they are only out of that artificial world

of man's making, in which so many are hastening to disappointment and ruin: but they are still in that other better world of contemplation and devotion, which affords them all the pleasures and improvements of the mind, and is preparatory to a state of uninterrupted felicity.

Let us then, finally, give thanks to him, who to the light of his gospel hath added this light of nature, and opened the wonderful volume of the creation before us, for the confirmation of his truth, and the illumination of his people; that we may thence know and see *the certainty of those things wherein we have been instructed*. As all his works are for our good, let it be our study and our wisdom to turn them all to his glory.

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